

AQUA CLEAN BIRDCAGE COMPANION**RHONDA SCHRADER**

This application is a continuation of U.S. Serial No. 10/121,100 filed April 11, 2002, which claims priority to provisional application No. 60/286,106, filed April 24, 2001.

FEDERALLY SPONSORED RESEARCH

[0001] Not applicable

SEQUENCE LISTING OR PROGRAM

[0002] Not applicable

BACKGROUND

[0003] 1. Field of Invention

[0004] The present invention relates to bird cages and a process for continuous cleaning and removal of allergens

BACKGROUND

[0005] 2. Description of Prior Art

[0006] Today's birdcage is a wire cage enclosure with a grid on the bottom to contain the bird yet allows waste to pass through. A pullout tray underneath the grid is customarily lined with newspaper and is removed and replaced as needed. No medium is provided which can contain, suspend and automatically remove the bird dander, feathers and airborne particulate, which are known to cause serious and life threatening respiratory problems.

[0007] Managing pet birds, commercially or residentially, can be a health hazard to humans and birds because of the airborne bacteria and disease caused from bird dander and dried bird waste.

[0008] Numerous cages and cage cleaning systems have been provided in the prior art, all provide some measure of cleaning but lack the ability to remove allergens and continuously clean and contain waste with minimal effort or maintenance.

[0009] Several types of flush systems have been proposed--for example in U.S. Pat. No. 4,181,612 to Trail (1980) and U.S. Pat. No. 5,148,771 to Schuett et al (1992) which suffer from a number of disadvantages:

[00010] (a) The waste can become dried between flush operations creating a difficult cleaning task.

[00011] (b) Waste and seeds can fall on semi-dry areas and bounce out of the enclosure.

[00012] (c) The intermittent operation of the flush system may agitate or frighten caged birds.

[00013] (d) The complicated systems have much apparatus to clean and maintain.

[00014] (e) Only the specified cage can be used with the systems.

[00015] The following types of cage cleaning inventions, for example in U.S. Pat. No. 5,156,640 to Del Rosario (1992) and U.S. Pat. No. 4,572,107 to Clarizo (1986) also suffer from a number of disadvantages:

[00016] (a) Waste becomes dried, bacteria become airborne and it is confined in the enclosed cage making it hazardous to the caged bird.

[00017] (b) Only the specified cage can be used with the systems.

[00018] Accordingly the problem of airborne particulate and dried waste has not been successfully addressed by prior invention.

Objects and Advantages

[00019] Several objects and advantages of the Aqua Clean BirdCage Companion are:

[00020] (a) To provide a healthy environment for humans and birds by containing waste and allergens in a safe, manageable embodiment.

[00021] (b) To provide gradual removal of waste allowing it to be viewed for a short time, which is necessary for the early detection of illness in birds.

[00022] (c) To provide a soothing sound and relaxing environment for birds and humans by the movement of water.

[00023] (d) To provide an easily adaptable system to accommodate the variety of sizes and styles of cages used for residential, as well as commercial use.

[00024] (e) To provide simplicity of bird keeping by the continuous cleaning of this invention.

[00025] (f) To provide ease of maintenance for the bird owner, by the continuous cleaning action and the basic operation of the system.

[00026] (g) The durable stainless steel components provide a non-porous surface which prohibit bacterial growth

[00027] (h) The continuous movement of water provides welcome humidity for birds.

[00028] (i) Ease of use is provided by the large liquid surface, which continuously cleans waste and airborne particulate, and channels it into a small unseen area to be emptied as needed.

[00029] (j) Fragrance may be added to the water to provide pleasant aromatherapy

[00030] Other advantages will become apparent from consideration of the ensuing description and drawings.

SUMMARY

[00031] In accordance with the present invention the Aqua Clean Bird Cage Companion employs a shallow body of water with a gentle current which flows across a stainless steel tray trapping and removing the waste and particulate within the water. The waste is carried off the edge of the tray into a plurality of filters, which clean the water in this closed system. The circulating pump returns the filtered water back to the tray to collect new waste and airborne particulate.

DRAWINGS

Drawing Figures

[00032] The Aqua Clean BirdCage Companion may be more clearly understood from the tailed description and by reference to the drawings in which:

[00033] FIG. 1. is a front elevational view of the complete Aqua Clean BirdCage Companion with a typical birdcage suspended above the same.

[00034] FIG. 2. is an exploded view of the Aqua Clean BirdCage Companion showing the deflector cap, the plastic tubing, the tray, support slats and the hopper as it relates to the bottom cabinet that houses the filtration system and pump.

[00035] FIG. 3. is a perspective view of the multiple filtration system and the circulating pump within the dual compartment acrylic unit; the acrylic unit is housed in the base member directly beneath the hopper.

Reference Numerals in Drawings

11 water	12 tray
13 plastic tube	14 tray notch
15 t fitting	16 hopper
17 slats	18 base member
19 flexible tubing	20 deflector cap
21 pullout shelf	22 hole for tubing
23 hole for electric cord	24 bird cage
25 grid floor	26 mesh basket
27 funnel	28 acrylic filtering unit
28A filtering compartment	28B filtering compartment
29 pump	30 capped drain hole
31 foam mat	32 fiberglass blocks
33 carbon cartridge	34 electric cord
35 plastic tube holes	36 deflector cap notch
37 angled surface of deflector cap	38 hopper notch
39 plastic grid	40 fill line
41 end caps	42 reservoir of water
43 hinged door	

DETAILED DESCRIPTION**Description-FIGS. 1-3 Preferred Embodiment****[00036]**

The drawings disclose the preferred embodiment of the present invention.

While the configurations according to the illustrated embodiments are preferred it is envisioned that alternate configurations of the present invention maybe adopted without deviating from the invention as portrayed.

[00037]

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, FIGS. 1-3 illustrate the Aqua Clean Bird Cage Companion that consists of a flat, three-sided tray **12**, a hopper **16**, a box like base member **18** and a filter unit **28**. FIG. 1 denotes similar elements, above which is a birdcage **24**.

[00038]

The birdcage **24** has a grid floor **25** for passage of waste therethrough. The tray **12** is below the cage **24** and when operational contains a shallow body of moving water **11** for the receiving of waste passing through the grid floor **25** of the cage **24**.

The tray **12** has a floor and three raised sides. The fourth side is open which allows waste filled water to exit the open edge of tray **12** and enter the hopper **16** directly below.

[00039] On the opposing side of the open edge within the tray **12** lies a plastic tube **13** with caps **25** on both ends and a T fitting **15** in the center. The plastic tube **13** has a plurality of holes **35** in which water **11** is pumped to create a current within the shallow body of water **11** contained in the tray **12**. Additionally, tray **12** has a notch **14** on the opposing side of the open edge to receive the T fitting **15** which connects the plastic tube **13** to the flexible tubing **19**.

[00040] The deflector cap **20** is a detachable collar that rests on and covers the top perimeter of the tray **12** with an angled surface **37** to deflect debris inward. Additionally, the cap **20** contains a notch **36** to receive the T-fitting **15**.

[00041] The hopper **16** is slightly larger in diameter than the tray **12** and supports the tray **12** by use of slats **17** that span the opening and maintain an opening for the water to exit the tray **12**. The hopper **16** is beneath the tray **12** and consists of four sides in which the support slats **17** and the tray **12** sit within. Each side is bent to form a conical surface that slopes downward creating a funnel shaped opening. One side contains a notch **38** to receive the T-fitting **15**. The waste filled water **11** exits the hopper **16** and enters the funnel **27** which contains a mesh basket **26** for daily disposal of debris such as seed and hulls. The funnel **27** and basket **26** sit atop the acrylic filtering unit within the base member **18**. The base member **18** has a dual function, it supports the hopper **16** and secondly houses the funnel **27**, the basket **26**, the acrylic filtering unit **28** and the circulating pump **29**. It further contains a hinged door **43** on one side for easy access to a pullout shelf **21** on which the acrylic filtering unit **28** rests. The back of the base member **18** has access holes for tubing **22** and electricity **23**. Water **11** and finer particulate flow into the acrylic unit **28**. The water and finer particulate first enter the two different filtering systems located within the first compartment of the acrylic unit **28A**.

[00042] The first consists of a coarse foam mat **31** which catches and holds the finer particulate such as dander and granular waste and is removed, rinsed and replaced as needed. The second filter is a biological filter, which consists of a plurality of fiberglass blocks **32** that rest on a plastic grid **39**, directly below the foam matt **31**. The fiberglass blocks house a bacterial colony, which purify the water **11** on a continuous basis.

[00043] The purified water **11** flows into the second compartment of the acrylic unit **28B** that contains the carbon cartridge **33** and the circulating pump **29** within the reservoir **42** of water **11**. The final filter is a cartridge of carbon **33**, which continues to purify the water **11** and remove odors. The carbon cartridge **33** can be changed as often as necessary. The pump **29** is connected to flexible tubing **19**, which exits the base member **18** through a hole **22** and connects to the T-fitting **15** in the tray **12**. Additionally the acrylic unit **28** has a capped drain **30**, which provides for easy draining of water **11** without disturbing or removing the filtration unit **28**.

Alternative Embodiments

[00044] While the description above contains many specifications, these should not be construed as limitations on the scope of the invention, but rather as an exemplification of one preferred embodiment thereof. Many other variations are possible. For example;

[00045] A. The Aqua Clean BirdCage Companion can easily adapt to a large floor model birdcage whereby the cage rests within the tray **12** on stainless steel supports. The grid floor **25** of the birdcage would remain while the seed tray; legs and casters of a typical floor model birdcage would be eliminated. The size of the tray **12** would be increased, and shape of the base member **18** and hopper **16** would be modified. The basket **26** and the funnel **27** are adapted to become a lift out screen within the hopper **16**. The hopper **16** is positioned directly over the acrylic unit **28**, which would be increased in size, as well as determining the pump **29** size required.

[00046] B. Another example would be a small version of the floor model intended for tabletop use with small cages. Whereby the size of the tray **12**, hopper **16** and pump **29** are reduced and the acrylic-filtering unit **28** is on a smaller scale.

[00047] C. Another embodiment would be a connected series of trays **12**, hoppers **16** and baskets **26** in a horizontal fashion. This configuration would provide for multiple cages to be located above the connected series of this system. This multiple configuration could be constructed for commercial use to provide easy maintenance and creates excellent health conditions when housing many birds. The acrylic filtering unit and pump size would be increased to handle the larger volume of water. Accordingly, the scope of the invention should be determined not only by the embodiment illustrated, but also by the appended claims and their legal equivalents.

Advantages

[00048] From the description above, a number of advantages of my Aqua Clean BirdCage Companion become evident:

[00049] (a) To provide a healthy environment for humans and birds by containing waste and allergens in a safe, manageable embodiment.

[00050] (b) To provide gradual removal of waste allowing it to be viewed for a short time, which is necessary for the early detection of illness in birds.

[00051] (c) To provide a soothing sound and relaxing environment for birds and humans by the movement of water.

[00052] (d) To provide an easily adaptable system to accommodate the variety of sizes and styles of cages used for residential, as well as commercial use.

[00053] (e) To provide simplicity of bird keeping by the continuous cleaning of this invention.

[00054] (f) To provide ease of maintenance for the bird owner, by the continuous cleaning action and the basic operation of the system.

[00055] (g) The durable stainless steel components have rounded edges for safety of both birds and humans.

[00056] (h) The durable stainless steel components provide a non-porous surface which prohibit bacterial growth

[00057] (i) The continuous movement of water provides welcome humidity for birds.

[00058] (j) Ease of use is provided by the large liquid surface, which continuously cleans waste and airborne particulate, and channels it into a small unseen area to be emptied as needed.

[00059] (k) Fragrance may be added to the water to provide pleasant aromatherapy.

Operation--FIGS. 1, 2, 3

[00060] The manner of using the Aqua Clean BirdCage Companion is to position a birdcage 24, which has a grid 25 for passage of waste, over the stainless steel tray 12. To begin operation the acrylic-filtering unit 28 is filled with water 11 to the fill line 24 and the circulating pump 29 is activated using household electricity. An immediately clean and healthy environment is created with the soothing and relaxing sound of moving water 11. The stainless steel deflector cap 20 rests on and covers the top perimeter of the tray 12 and the plastic tube 13. The deflector cap 20 has an angled surface 37 to deflect debris inward, protects the tube 13 from damage and prevents

waste from getting on or behind the tube **13**. The tube **13** is connected to the T-fitting **15** in the center, which exits the tray **12** and is connected to the flexible tubing **19**. The tubing **19** is beneath the tray **12**, enters the base member **18**, and connects to the pump **29** housed within the base member **18**. The operational Aqua Clean BirdCage Companion employs a shallow body of water **11** that continuously flows across the tray **12**. The water **11** is pumped through a plurality of holes **35** in the plastic tube **13**. The moving water **11** traps, contains and gradually removes waste and airborne particulate from view. The waste filled water **11** flows off the open edge of the tray **12** and enters the stainless steel hopper **16**. The hopper **16** is supported by the base member **18** which houses the funnel **27**, the mesh basket **26**, the acrylic filtering unit **28** and the pump **29**. The conical shaped hopper **16** channels the water **11** into the funnel **27**, which contains a mesh basket **26** for daily disposal of debris such as seed and hulls. The water **11** and finer particulate continue through the funnel **27** into the dual compartment acrylic filtering unit **28,28A, 28B** which houses the water **11**, the reservoir **42** and three different filtering systems.

[00061] The compartment **28A** contains the first and second filters. The first filter comprises a coarse foam mat **31** which catches and holds the finer particulate such as dander and granular waste, yet allows water **11** to flow into the second filter directly below. The biological filter rests on the plastic grid **39** and comprises a plurality of fiberglass blocks **32**, that house a bacterial colony which purify the water **11** on a continuous basis. The compartment **28B** contains the final filter **33**, the circulating pump **29** and the reservoir of water **42**. Compartment **28B** receives the water **11** through an opening in the bottom of the acrylic divider from Compartment **28A**. The filter is a carbon cartridge **33**, which removes odors and purifies the water **11** as it is collected in the reservoir **42** in compartment **28B**. The pump **29** is connected to the flexible tubing **19**, which exits the base member **18** and connects to the T-fitting **15** within the tray **12**. Filtered water is returned back to the tray **12** to trap and collect waste, whereby the water is continuously renewed as a constant medium by the filter unit. This completes the circulating closed water system.

[00062] Accordingly, the reader will see the ease of use provided by the Aqua Clean BirdCage Companion. To maintain maximum efficiency of this invention the following steps are taken daily:

[00063] 1. Turn off the circulating pump **29**.

[00064] 2. Remove the mesh basket **26** and empty collected waste.

[00065] 3. Replace the basket **26**.

[00066] 4. Check the fill line **24** and add the required amount of water **11**.

[00067] 5. Turn on the pump **29**.

[00068] To maintain maximum efficiency of this invention the following steps are taken weekly or as needed:

 1. Turn off the circulating pump **29**.

 2. Lift out the coarse foam mat **31**, rinse and replace.

 3. Lift out the carbon cartridge **33**, rinse and replace.

 4. Turn on the pump **29**.

[00073] Additionally for relocation or draining of the system, the acrylic unit **28** has a capped bottom drain **30**, which provides for easy draining of the water **11** without disturbing or removing the unit **28**. While certain novel features of this invention have been shown, it will be understood that various changes of the system illustrated and in its operation can be made by those skilled in the art without departing from the spirit of the invention.

Conclusion, Ramifications, and Scope

[00074] Accordingly, the reader will see that the continuous cleaning of the Aqua Clean BirdCage Companion provides a healthy and clean environment for humans and birds by containing harmful allergens and bacteria found in bird waste, feathers and dander. In addition to the healthy and clean environment, the hydraulic system provides humidity and or fragrance along with the soothing sound of moving water.

[00075] This system with its basic design provides for ease of maintenance, ease of use and ease of cleaning in addition to providing automatic and continuous cleaning during the normal operation. The preferred material of the exposed components in this system, being stainless steel provide a durable non-porous surface which prohibits bacterial growth and is easily cleaned. The design of these components have rolled edges to provide a safe and long lasting surface. The system is easily adaptable to accommodate the variety of sizes and styles of cages and can be connected in series to accommodate multiple cages. Lastly, the system can be easily adapted to accommodate cages that contain a bottom grid designed for reptiles and other animals which may require humidity in their environment. Accordingly the scope of the invention should be determined not by the embodiments illustrated but by the appended claims and their legal equivalents.